TABLE 5. FEES TO RECOVER FULL CORPS OPERATING AND MAINTENANCE COSTS AT SELECTED PORTS IN THREE SIZE CLASSES

Class Averages and High-Cost Ports	Tonnage 1978	Fee in 1982 Dollars per Ton
AVERAGES		
National Average (281 ports) a/	6,578,683	0.18
Large Ports (47 ports)	34,564,026	0.12
Medium Ports (139 ports)	1,603,228	0.59
Small Ports (50 ports)	25,042	9.87
LARGE PORTS (more than 10 million tons a year)		
Savannah Harbor (GA)	10,633,400	0.95
Portland (OR)	16,525,000	0.79
Cleveland Harbor (OH)	19,583,600	0.71
Calcasieu River (LA)	13,562,949	0.55
MEDIUM-SIZED PORTS (100,000 to 10 million tons a year)		
Lake Washington Ship Canal (WA)	101,731	38.11
Umpqua River (OR)	195,985	12.79
Yaquina Bay and Harbor (OR)	168,545	8.17
Georgetown Harbor (SC)	558,842	4.89
Rochester Harbor (NY)	201,138	4.25
Sheboygan Harbor (WI)	264,100	3.19
Crescent City Harbor (LA)	235,268	3.02
SMALL PORTS (Less than 100,000 tons a year)		
Cape Vincent Harbor (NY)	9	54,478
Ontonagon Harbor (MI)	22	19,809
South Haven (MI)	9	6,700
Michigan City Harbor (IN)	66	5,952
Santa Barbara Harbor (CA)	172	4,117
Grand Marias Harbor (MI)	31	3,445
Napa River (CA)	350	548
Atchafalaya River (LA)	10,002	377

SOURCE: Congressional Budget Office from U.S. Army Corps of Engineers, Office of the Chief of Engineers, "Deep Draft Navigation Cost Recovery Analysis" (September 1982).

a. Of 281 ports for which the Corps of Engineers maintains records, 45 had zero tonnage in 1978.

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fees at some maximum rate. 9/ If user fees were capped at $0.15 a ton, for example, receipts between 1984 and 1988 would be reduced to about $1.7 billion (about one-half the sum required for full-cost recovery). This would benefit roughly half (129) of all ports by reducing fees on about 22 percent of all U.S. cargo. Of these ports, 32 are small (64 percent of all small ports), 52 are medium-sized (37 percent of all medium-sized ports), and 13 are large (28 percent of all large ports).

Under the Senate proposal, major capital improvements, such as port deepening to accommodate large coal vessels, could more than double total user fees, but cost savings resulting from use of the larger vessels would appear to warrant the higher fee. For example, the estimated cost for deepening the Port of Norfolk to 55 feet is about $480 million. If these costs were shared according to the Senate proposal, the resulting additional user fee on traffic using the deeper draft would average about $0.70 a ton over the 50-year payback period. Similar proposals for deepening other coal ports would result in additional user fees over a 50-year span, ranging from $0.46 per ton (New Orleans) to $2.70 per ton (Mobile). But deepening coal ports would allow loading of large colliers, reducing the overseas transport costs of steam coal, with estimated savings of around $6 a ton in moving coal from East Coast ports to Europe.

Concluding Notes on Current Inaction

Despite the apparent prospect of favorable economic return from many port projects, little progress is likely without a firm national policy on port cost recovery. The Port of Norfolk, for example, has considered self-financing of dredging projects through revenue bonds, but Norfolk authorities have made clear that they will wait until user fee legislation defines federal and nonfederal roles in port development. New York City has also considered going ahead on its own with a deep-draft coal port on Staten Island. Portland (Oregon) would like to dredge its main channel deeper than the current 40-foot level, but the city claims that the project would be uneconomic without a federal subsidy and would prefer at least a 50/50 split.

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9. The cap concept was a major provision in two Senate bills introduced early in the 98th Congress. S. 865, introduced by Senator Mark Hatfield would have limited user fees to the lesser of 6 percent of the value of a ship's cargo or 44 percent of the Corps expenditures. S. 970, introduced by Senator Daniel Patrick Moynihan, would limit fees to 50 percent of Corps expenditures, or a cap of about 15 cents per ton in 1988.

Spokesmen for one small port, for example, have expressed their willingness to pay 100 percent of new construction costs over time through collection of user fees, but can offer no "up-front" capital contribution. Again, no agreement has been reached, because the port could not be assured of the legality of assessing user fees in the absence of federal user fee policy. Because of such uncertainties, no port authority has been willing to enter into a cost-sharing agreement with the Corps at this time.

CHAPTER III. INLAND WATERWAYS

The existing federal barge tax--8 cents per gallon of motor fuel--recovers only $54 million of the $631 million spent annually on inland waterways by the U.S. Army Corps of Engineers. Recovery of all federal costs would require a systemwide fee equal to 3 mills per ton-mile (the current tax is equivalent to 0.25 mills per ton-mile). The alternative of a segment-specific fee would range from 0.6 mill per ton-mile for low-cost waterways to $1 for the most expensive ones. A uniform fee would raise shipping costs by roughly one-third, in turn, increasing prices of goods shipped by barge and/or reducing farm incomes. Another outcome would be a diversion of freight traffic from barge to rail.

The U. S. Army Corps of Engineers (the Corps) began construction and maintenance of the nation's inland waterway system in 1824, when the General Survey Act directed the Corps to clear snags and sandbars from the Ohio and Mississippi rivers. Today, the Corps maintains a navigation system of 25,000 miles of improved channels and 210 locks and dams. In 1982, this system carried about 13 percent of all intercity freight traffic, most of it consisting of barges carrying commodities and bulk goods of low value per ton. This freight included coal, petroleum and petroleum products, grains, sand and gravel, and chemicals. Inland waterway traffic has increased at an average rate of about 3.4 percent a year over the last decade. 1/ Except for a small user fee enacted in 1978, spending by the Corps has been financed by the general taxpayer.

CURRENT POLICY

The Inland Waterways Revenue Act of 1978 (Public Law 95-502) instituted the first user fee for this service in more than a century, but it left a major share of funding for waterways to come from general federal

1. See U. S. Army Corps of Engineers, Waterborne Commerce of the United States, Calendar Year 1981 (February 1983), p. 27.

revenues. 2/ The 1978 act established a fuel tax of 4 cents per gallon of fuel in 1980, with two-cent increases scheduled for 1982, 1984, and 1986, respectively. Tax receipts are paid by commercial carriers into the Inland Waterways Trust Fund and are dedicated to construction or rehabilitation of the inland waterways. Even when the tax rate levels off at 10 cents per gallon, however, fee collections will amount to only 12 percent of the Corps' projected 1986 waterway expenditures, though they will cover more than one-third of planned capital spending (see Table 6).

In 1984, for example, the federal costs for inland waterways will total some $631 million, of which users will contribute about $54 million. Between 1984 and 1988, the Corps will spend nearly $3.1 billion on inland navigation facilities, of which only about $325 million--roughly 10 percent--will be recovered through user fees. Of these funds, more than three-fifths will go for maintenance dredging and operation of navigation works, with the balance available for new construction and major rehabilitation of existing structures.

Effects of the Changed Federal Role. The Corps' original role in the inland waterway system stemmed from the need to link major, established population centers with burgeoning agricultural and industrial regions in the Midwest. As economic activity moved westward, inland waterways served critically in encouraging and serving this new growth. Now, however, the nation's freight transport network has matured, and it includes a trucking industry using a system of user-financed interstate highways, a network of private railroads, and numerous pipelines. The federal role in providing inland waterway navigation services is no longer one of ensuring a basic transportation service to an expanding region. Rather, today, all modes of transport face one another in a competitive environment.

Thus, a key federal objective is to encourage the most effective use of all modes at the least economic cost to the nation. This goal is difficult to achieve with one mode--the barge industry--receiving a disproportionate share of federal dollars devoted to transportation. As a share of its total costs, the waterway transport industry received almost six times more federal support in 1982 than did railroads and 40 times more than did

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2. During the 19th century, user fees were collected on some federal canals, but these were eliminated in 1871. User fees have also been applied in the past for nonfederal public and private canals. Today, for example, user fees support New York State's Erie Canal and the joint U.S./Canandian St. Lawrence Seaway.

TABLE 6. PROJECTED WATERWAY SPENDING BY THE U.S. ARMY CORPS OF ENGINEERS AND EXPECTED RECEIPTS FROM EXISTING USER FEES, TO 1988 (In millions of dollars)

Expenditures and Receipts	1984	1985	1986	1987	1988	Five-Year Total
Construction a/	292	225	201	214	252	1,184
Operation and Maintenance b/	339	359	381	404	428	1,911
Total Spending	631	584	582	618	680	3,095
Receipts from Current Taxes (-) c/	-54	-55	-70	-72	-74	-325
Potential User Fee Receipts to Recover Full Costs d/	577	529	512	546	606	2,770

SOURCE: Congressional Budget Office from data supplied by the U.S. Army Corps of Engineers.

a. Projected construction expenditure schedule for ongoing projects only.

b. Assumes a constant program level in real terms based on fiscal year 1983 expenditures.

c. Eight cents per gallon of fuel in 1984 and 1985 and ten cents in later years.

d. Assumes cost recovery based on cash flow; amortization of construction costs would reduce this sum by roughly one-third for these years.

trucks. 3/ Pipelines receive no federal financial support. Federal subsidies to the waterway industry effectively lower the costs of barge shipping by

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3. See Table 8 (below) and Congressional Budget Office, testimony of Alice M. Rivlin before Senate Committee on Environment and Public Works, March 10, 1982.

nearly 25 percent, causing shippers to shift from other modes to the waterways, as well as causing competing modes to offer lower rates than otherwise. This preference in turn artificially stimulates demand for continued federal investments in locks, dams, dredging, and the like. The result is a spiral of economic inefficiency.

THE PROSPECT FOR FULL-COST RECOVERY

Economic distortions caused by this large subsidy could be significantly corrected if inland waterway users were charged federal fees in proportion to the costs those users impose. Besides promoting equity among waterway users and general taxpayers, user fees would improve the allocation of the nation's economic resources. Barge operators and shippers alike would support waterway projects--system expansions or facility improvements--only if they judged that the value of potential savings from the projects exceeded the fees assessed.

Because many waterway projects serve various purposes, costs relating to commercial transport must be separated from costs devoted to such other purposes as water quality, flood control, irrigation, recreation, and fish and wildlife preservation. This process of cost allocation grows in importance as full-cost recovery is approached. Recognizing this, the Corps has developed a cost allocation formula that first subtracts all specific non-navigation costs on a segment-by-segment basis before estimating navigation expenditures. 4/

If user fees to recover full inland waterway costs were implemented in 1984, about $630 million would be collected--an increase of about $580 million over receipts from the existing tax. Between 1984 and 1988, revenue from a user fee set to recover full costs would total about $3 billion (see Table 6). If construction costs were amortized over the expected life of the facilities, rather than collected on a cash-flow basis, revenues for the first five years would be reduced by about $1 billion. The difference would be collected later over the remaining life of the improvements. As noted in Chapter I, paying for the construction of a facility over time (with appro-

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4. This procedure, developed for legislation introduced in the 97th Congress, uses a Corps cost allocation convention known as, "separable costs, remaining benefits" or SCRB. For details on SCRB and its use see U.S. Army Corps of Engineers, Digest of Water Resources Policies and Authorities, Office of the Chief of Engineers (March 27, 1981), and see U.S. Army Corps of Engineers, Office of the Chief of Engineers "Shallow Draft Navigation Cost Recovery Analysis" (September 1982).

priate interest charges) is more equitable than cash-based financing, particularly if the fees are assessed on a project-by-project basis.

Recent Proposals

Since the passage of the Inland Waterway Revenue Act of 1978, the Congress has considered numerous proposals for additional waterway user fees. Most of these proposals have been subsumed by omnibus water resources legislation recently introduced both in the Senate (S. 1739) and in the House (H.R. 3678).

Proposals in the 97th Congress. Early in 1981, the Senate considered two bills--Amendment 1637 to S. 810 (the Administration bill) and Amendment 32 to S. 810 (the Domenici Amendment)--that would sharply reduce waterway subsidies by means of user fees. The Administration bill called for phasing in fees to recover all federal expenses with capital costs amortized over 50 years. The Domenici amendment called for phasing in fees to recover 75 percent of federal operation and maintenance (O&M) expenditures and 50 percent of construction expenditures in the year they are incurred. Neither bill specified the type of fee to be applied. Another amendment to S. 810 (Number 1342) called for uniform fees to recover full federal O&M expenses and segment-specific fees to recover full federal construction outlays. A second Administration plan, S. 1554 proposed in 1983, called for uniform fees to recover 70 percent of federal O&M spending and segment-specific fees to recover 70 percent of federal construction spending.

S. 1739. This current proposal--already passed by the Senate Committee on Environment and Public Works--would limit annual federal obligations for waterway construction and O&M to $646 million--the 1983 level of federal expenditures for these projects. The bill would also create an Inland Waterway Users Board composed of users and shippers from all regions. Each year the board would recommend to the Congress spending levels for the following year. If the recommended level were less than $646 million, the Congress would authorize that level of appropriations from both general revenues and the existing Inland Waterways Trust Fund. The remainder would be available for obligation in any future year. Spending in excess of $646 million would require federal user fees unless there were an unobligated balance from prior years.

A federal obligation cap of $646 million a year would seem adequate to cover projected annual O&M spending plus construction spending for all projects under way. Inflation plus a projected need for new construction projects, however, would probably result in additional user fees in future

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years. Inflation aside, estimates of construction and major rehabilitation needs range from about $300 million a year 5/ to about $600 million a year. 6/ In 1988, if the Users Board recommended construction spending midway between these two estimates, a uniform user fee of about 1 mill per ton-mile of traffic could be imposed to collect some $232 million from waterway users. A user fee of 1.6 mills per ton-mile could finance $600 million of construction in 1988.

H.R. 3678. Though no new federal user fees are proposed in this current bill (already passed the House Committee on Public Works and Transportation), H.R. 3678 would redistribute the local share of the cost of construction projects. Current policy requires that state or local interests contribute all land, easements, and rights-of-way necessary to construct inland waterway projects. Traditionally, the local costs of doing so have accounted for about 5 percent of the average waterway construction project. 7/ H.R. 3678 would dispense with this requirement, providing instead that two-thirds of all construction costs (including land, easements, and rights-of-way) be paid out of general federal revenues and one-third be appropriated from the Inland Waterway Trust Fund.

Because it would require that one-third of construction funding come from user fees, the House bill could also limit future federal construction outlays in future years. By the end of 1985, the Inland Waterway Trust Fund will accumulate an estimated $209 million--the fund's projected unobligated cash balance. On the basis of the $0.10 per gallon maximum fee in 1986, annual receipts would be about $70 million, increasing thereafter at perhaps 2 percent to 3 percent a year. If waterway construction needs averaged the low estimate of $300 million a year for the next 20 or so years, construction spending could deplete the trust fund by 1990, limiting future construction spending to about $240 million a year (three times annual waterway fuel tax receipts). If waterway construction needs averaged the high estimate of $600 million a year and user fees were not increased, the trust fund could be depleted as early as 1986, again, limiting spending for waterway construction in future years to just triple annual waterway fuel tax receipts.

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5. See Congressional Budget Office, Public Works Infrastructure, p. 79.

6. See U.S. Army Corps of Engineers, National Waterways Study--A Framework for Decision Making--A Summary (January 1983).

7. See U.S. Water Resources Council, Options for Cost Sharing Implementation and OM&R Cost Sharing for Federal and Federally Assisted Water and Related Land Programs—Part 5A (November 1975).

EFFICIENCY AND EQUITY IMPLICATIONS

Two basic approaches could be applied in collecting waterway user fees, with significantly different implications for general economic efficiency and regional effects. First, with uniform systemwide fees, all waterway costs would be lumped together and all waterway users charged uniform rates. Second, fees could be segment-specific, based on the costs and levels of traffic peculiar to each of the roughly 30 major parts of the system.

Uniform systemwide user fees would result in cross-subsidization. Traffic on low-cost segments would pay more than the costs they impose, while traffic on high-cost segments would pay less than their share. In 1984, for example, a uniform fee that recovered all Corps spending would have to be set at about 3 mills (0.3 cents) per ton-mile. At that rate, traffic on the low-cost Ohio River, for example, would pay more than triple the actual costs on that segment--0.9 mills per ton-mile. On a high-cost segment such as the Kentucky River, costs would equal about 100 mills (10 cents) per ton-mile--more than 33 times the uniform fee of 3 mills per ton-mile.

Uniform fees would be unlikely to force any waterway segments to close. This would provide substantial assurance for regional economies that depend on barge traffic. The inherent cross-subsidies would be so large, however, that most of the potential efficiency gains from user fees would be lost.

Segment-specific fees would affect both waterway operations and other industries very differently. Charges set segment-by-segment to recover all federal O&M costs would range from 0.6 mills per ton-mile on the lower Mississippi River to more than $1 per ton-mile on the Pearl River. The higher rate would be five to ten times the cost of moving goods by truck. For some segments, these charges would be so high that existing traffic could not afford them, and those segments might close, providing a graphic example of how user fees can focus spending on the more cost-effective parts of a system. Four segments would face charges greater than 40 mills per ton-mile—more than four times the average shipping rate on waterways: the Kentucky River, the Appalachicola/Flint Rivers, the Pearl River, and the North Atlantic Coast Waterway (see Table 7). If the Corps did not operate these four segments, its overall costs would be somewhat lower than the totals cited above in the discussion of current expenditures.

In other places, segment-specific fees might divert some traffic to other routes, which in turn would increase fees for remaining traffic. How much diversion resulted would depend on the rates charged not only by competing waterways but also by railroads and trucks. Because traffic diversion would mean that the costs are borne by a smaller volume of traffic, the cost per unit of traffic would increase and fees could, on average, end up about 24 percent higher than the full-cost recovery levels shown in Table 7. 8/

Some perverse consequences could result from segment-specific fees collected on a pay-as-you-go basis. For example, use of the Tennessee-Tombigbee waterway by coal traffic from Illinois, Kentucky, and Tennessee could relieve congestion problems on the current route down the Ohio and Mississippi Rivers. Under full-cost segment-specific fees, however, the Ohio-Mississippi route would be considerably cheaper and thus could remain congested, while the higher-cost Tennessee-Tombigbee would be underused. If the problems on the Ohio and Mississippi became severe enough, however, congestion fees might provide some relief.

Waterway User Fees in the Context of Federal Transportation Subsidies

Fees for waterways would function most effectively as part of a general federal policy of charging users the full costs of federally provided transportation services. Under such a broad policy, user fees would not disadvantage waterborne transport relative to competing modes--trucks and railroads. Rather, they could help correct the distortions created by the current nonuniformity of federal support.

In 1982, domestic inland waterway transport received the highest federal subsidy of any freight mode--3.3 mills per ton-mile, or enough to cover more than one-fourth of the costs of all inland waterway shipping (see Table 8). As stated above, this was more than six times the portion of freight movement costs covered by federal rail subsidies and more than 40 times truck subsidies. In 1982, the Congress increased truck taxes (part of the user fees for the highway system) by 55 percent, but spending

8. See U.S. Department of Transportation, Inland Waterway User Taxes and Charges, Report to the Secretary of Transportation to the U.S. Congress pursuant to Section 205 of P.L. 95-502 (February 1982).

TABLE 7. HIGH- AND LOW-COST WATERWAYS UNDER SEGMENT-SPECIFIC USER FEES, FOR SELECTED SEGMENTS

Waterway Segments	Average O&M Costs (In millions of 1982 dollars) a/	Millions of Ton-Miles Carried in 1981	Fees per Ton-Mile (In cents)
	HIGH-COST SEGMENTS		
Average Segment	3.3	27.8	11.8
Pearl River	0.2	0.1 b/	126.6
Kentucky River	3.1	14.9	20.5
Appalachicola/Flint	7.7	62.5	12.3
North Atlantic Coast c/	2.1	33.8 b/	6.2
	LOW-COST SEGMENTS		
Average Segment	12.6	12,515.3	0.10
Ohio	29.0	39,602.1	0.07
Tennessee	4.9	4,842.2	0.10
Gulf Inland Waterway-West d/	25.1	16,248.3	0.15
Green/Barren	1.4	768.6	0.18
Gulf Inland Waterway-East e/	2.5	1,115.1	0.23

SOURCE: Congressional Budget Office from U. S. Army Corps of Engineers, "Shallow Draft Navigation Cost Recovery Analysis," Office of the Chief of Engineers (September 1982) and Waterborne Commerce of the United States, Calendar Year 1981, National Summaries (February 1983).

a. Average 1977 through 1982 in 1982 dollars.

b. 1979 ton-miles.

c. North Atlantic Coastal Waterway, Virginia through Maine, including New York State Waterways.

d. Gulf Intercoastal Waterway, Texas, and Louisiana.

e. Gulf Intercoastal Waterway and New Orleans through Key West, Florida.

TABLE 8. COMPARISON OF FEDERAL SUBSIDIES FOR INTERCITY FREIGHT TRANSPORT IN 1982

Mode	Mills per Ton-Mile	Subsidy as a Percent of Total Enterprise Costs
Truck	1.3	0.6
Railroad a/	1.4	4.2
Inland Waterway	3.3	28.5

SOURCE: Congressional Budget Office.

a. Does not include indirect aid to the railroad industry owing to changes in federal tax temporarily allowing railroads to write off the value of most fixed assets.

increased by 69 percent, so that subsidies to large trucks remain. 10/ Pipelines have never received federal financial aid.

Such comparisons of subsidy levels have several limitations. First, as national averages, they may not reflect the situation of any one region or company. Second, the costs of joint investments are difficult to allocate precisely to diverse user groups because they benefit several groups at once.

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10. Truck subsidies consist of the difference between tax payments by combination (usually five-axle) trucks, and their estimated share of federal highway spending, including both trust fund and general fund expenditures. The most important railroad subsidies were Federal Railroad Administration programs and federal payments to the Railroad Retirement Board, including benefits from the tax-free nature of railroad pensions. Inland waterway subsidies include the navigation-related portions of spending by the Corps of Engineers on construction and operation of inland locks and dams. For a discussion of federal subsidies to intercity rail passenger service, see Congressional Budget Office, Federal Subsidies for Rail Passenger Services: An Assessment of Amtrak (July 1982).

Highway projects, for instance, serve both trucks and cars. Finally, there is some uncertainty about what constitutes a subsidy and how it should be calculated. Nevertheless, these simple, aggregate statistics show that inland waterways now receive by far the largest federal subsidy of any mode of freight transportation.

PRICE EFFECTS

Any level of user fee will increase the operating costs of shippers, and in turn, may increase the prices of consumer goods or decrease producers' revenues. For example, a user fee set to recover 75 percent of federal O&M expenditures and 50 percent of capital expenditures would increase total costs for the average inland waterway carrier by about 24 percent. Carriers would probably bear part of the increase, but they could pass a substantial portion back to producers or forward to domestic or foreign consumers. The amount actually passed along would depend on reactions of competing modes of transport--most importantly, railroads--and on market conditions for specific commodities.

Coal, soybeans, and grain would be among the commodities most affected by increased user fees. Most coal shipped on the waterways for domestic use is delivered to electric utilities, which would probably pass the added costs on to consumers in the form of higher electric bills. Nevertheless, because the average coal shipment uses inland waterways for relatively short distances, even full-cost recovery user fees would add less than $1 per ton to the purchase price of coal. Coal, in turn, accounts for about one-half the price of generating power; electricity consumers thus would pay only about 1 percent more for electric power.

Coal shipped for export would also be affected. Full recovery of inland waterway costs could add up to the same $1 per ton to the price of steam coal delivered to Europe from East and Gulf Coast ports. Compared with the current delivered price of about $60 per ton for U.S. coal to European ports (or $52 per ton for Western coal delivered to Japan), this represents less than a 2 percent increase in the delivered price. Though the net increase would be small compared with the delivered price, the U.S. share of the world coal market would probably decline somewhat.

User fees set to recover half of all federal waterway expenditures would increase the cost of waterborne grain shipments by about 9 cents per bushel in 1990. However, an increase in grain prices caused by higher user fees would probably have only a small impact on the U.S. export position in wheat, corn, and soybeans. The United States exports about one-third of these domestically grown crops--in 1982, about 125 million tons out of a total crop of about 400 million tons. The United States is a "residual supplier" of grain to the world market, meaning that competing countries are generally able to sell their available supplies at prices below U.S. prices, with the remaining demand filled by the United States. Considering this and the fact that a price increase of 9 cents per bushel represents about a 3 percent increase over the export price of corn and about a 1.5 percent increase over the export price of wheat or soybeans, U.S. exports would probably not be significantly affected.

Existing trading arrangements would help to mitigate any loss of U.S. market shares in world grain trade. To protect its own domestic market, the European Community—which purchases about 10 percent of U.S. grain exports—uses a system of import levies to raise the prices of imported grain to its internal price levels. If, because of U.S. transport subsidies, the landed prices for U.S. grains are lower than they would otherwise be, then these subsidies would result in higher import levies in the European Community and no price advantage for U.S. agriculture. User charges would result in a higher landed price of U.S. grain imported by the European Community, but as long as that price remained below the European internal price for grain, import levies would simply be reduced accordingly. If the United States were not undersold by cheaper grain from other grain-exporting countries, demand would be unaffected.

Other nations also have trade and agricultural policies that result in U.S. grains' being sold internally at prices higher than international market prices. For example, Japan, which purchases about 10 percent of U.S. wheat exports, discourages the substitution of wheat for rice, which Japan produces in surplus. It does this through a system whereby U.S. wheat is resold at about a 50 percent markup over import prices paid by the Japanese government trading agency. Policies such as these mean that much export grain is already sold in markets that are not highly sensitive to U.S. prices, and that the small increases in U.S. export prices that could result from user fees would not have substantial effects on the volume sold.

Even so, U.S. grain farmers might bear part of the burden of increased waterway user fees. Depending on export demand, domestic grain production, and the responses of other truck and rail haulers to higher barge rates, user fees could be passed back to farmers, or they could be absorbed in part by intermediate handlers between farm and port. When the market for grain is slack—as it is now—many waterway carriers have excess capacity; thus, competitive pressures would force them to absorb part of any increase in waterway user fees.

Though the amount of the user fee borne by grain consumers, farmers, carriers, and middlemen would vary from place to place and time to time, if half of the 9 cents per bushel cost increase were borne by farmers, they would absorb a loss of about 1.5 percent in gross revenue for corn and wheat and about 1 percent for soybeans. For a typical commercial farm producing 400 acres of corn and soybeans each year, this would mean a loss of gross annual revenue of about $1,300. For smaller family farms that augment their incomes with nonfarm earnings, annual gross incomes could decline by about $225.

Assorted user fees, mostly systemwide, could recover the U.S. Coast Guard's now almost entirely subsidized 1984 cost of more than $1 billion to provide services for commercial mariners and recreational boaters. These services include search and rescue operations, navigational aids, marine safety, and environmental protection. Almost one-third of collections would come from recreational boaters, at an average rate of $18 per boat. Fishing fleets (an average of $1,500 per boat) and inland ($1,300) and coastal shippers ($13,800) would pay according to a measure of vessel size, power, or carrying capacity. Remaining receipts would derive from specific fees for licensing, documentation, and safety inspection activities.

The U.S. Coast Guard, a unit within the Department of Transportation, spends about $2.5 billion a year on a wide range of services, including military preparedness, drug enforcement, and a host of safety- and navigation-related undertakings. Four Coast Guard services, together entailing more than $1 billion in costs in 1984, provide direct benefits to commercial mariners and recreational boaters. These activities are search and rescue, aids to navigation, marine safety, and marine environmental protection. Though widely varied in what they do and whom they benefit, these four activities seem good candidates for consideration of user financing. Although user fees have been proposed in the past, at present the general taxpayer supports all but a minor fraction of these and other Coast Guard activities.

Search and Rescue

Search and rescue operations, among the Coast Guard's oldest functions, take priority over all its other peacetime missions. 1/ Both

1. See U.S. Department of Transportation, Coast Guard Roles and Missions, Report (March 1982), p. 11. The Coast Guard was officially established in 1915, when the Congress merged the Life-Saving Service (first authorized in 1837) and the Revenue Cutter Service (the forerunner of the Coast Guard, dating back to 1789-1790 and charged with collecting customs and tonnage duties).

commercial mariners and recreational boaters benefit from services provided by the world's largest search and rescue organization, which includes 184 shore facilities operating roughly 2,100 small boats, 26 air stations with 139 aircraft, and 79 patrol vessels. Total search and rescue costs, including both capital investment and operations and maintenance, are estimated at $398 million for 1984 (see Table 9). For 1980, the Coast Guard estimates that recreational boaters accounted for three-fourths of its search and rescue missions and three-fifths of their costs. 2/ Commercial marine operations and some defense rescues account for the rest. (About one-fourth of Coast Guard spending for search and rescue goes for non-marine activities--mostly aircraft searches--and thus have been excluded from this analysis.)

In considering application of user fee financing to recover this sum, these services appear comparable to fire and police protection, which remain perpetually available to property owners though not regularly or predictably used. Just as property owners pay fees, in the form of property taxes, for these emergency services, so might commercial and recreational boaters operating in waters under Coast Guard jurisdiction pay fees to defray the costs of the Coast Guard's constant readiness and intermittent search and rescue missions.

Aids to Navigation

These aids mark channels, warn of hazards, and help navigators identify their vessels' location. Without them, all maritime activity in U.S. coastal and inland waters would be far more dangerous, difficult, and costly than it is. For 1984, recoverable costs associated with these activities are estimated at about $335 million. Though used by all vessels, these aids are designed mostly to meet the needs of commercial marine users.

The Coast Guard's navigational aids fall into four categories. **Short-range aids** include buoys, lighthouses, daybeacons, fog signals, and

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2. Distribution of costs among nongovernmental marine user groups is based upon the Coast Guard's analysis and estimates in its document, U.S. Coast Guard Cost Distribution System, which supported the U. S. Department of Transportation-Coast Guard User Fee presentation of September 11, 1981. The Coast Guard's percentages of cost distribution are applied as provisional estimates for the purposes of this study. The Search and Rescue (SAR) Data System, in existence since 1971, permits accurate accounting of costs for Coast Guard activity in each search and rescue case, and identifies for each operation the kind of vessel or craft assisted.

TABLE 9. COAST GUARD OUTLAYS FOR PROGRAMS CONSIDERED FOR FULL USER FEE FINANCING (In millions of dollars)

Program	1984	1985	1986	1987	1988	Five-Year Total
Search and Rescue	398	411	422	433	439	2,103
Aids to Navigation	335	349	358	367	373	1,782
Marine Safety	152	158	163	167	170	810
Marine Environmental Protection	166	171	176	181	181	875
Total Costs a/	1,051	1,089	1,119	1,148	1,163	5,570
Other Programs b/	1,467	1,514	1,563	1,611	1,622	7,777
Total Spending	2,518	2,603	2,682	2,759	2,785	13,347

SOURCE: Congressional Budget Office from U. S. Department of Transportation, "Coast Guard User Fee Proposal; Supplemental Data" (September 11, 1982) and "Demonstration Fee Schedules" (December 23, 1981).

a. Includes outlays for operations and maintenance; acquisition, construction, and improvement; and research and development related to commercial marine activities and recreational boaters. Excludes polar region ice-breaking costs, which already are largely reimbursed by government agencies that benefit from this service.

b. Includes defense-related activities, marine research, drug enforcement, and pension payments, as well as nonmarine search and rescue activities and pollution clean-up from nonmarine sources. These are not considered as costs that are recoverable from maritime users.